PCW-World

PCW-World PCW8256/8512 PCW9512 & PcW9256 PcW9512 +

The World of the PCW

Geoffrey Childs

A guide to Personal Computing on the Amstrad PCW range

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Read all about our new book 'The World of the PCW'

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News

BT Charger

We are very pleased to announce a new program for all Amstrad PCWs (and PcWs) called BT Charger.

With the ever spiralling cost of telephone calls, either in the home or in the office, you can be forgiven for wanting to have your telephone disconnected when reading your latest phone bill.

While the convenience and usefulness of a telephone can not be overlooked, there has long been a need for a means to track telephone calls consistently so that an 'on-going' record of call charges can be maintained. But how can this be done?

PCW-World now have the answer. BT Charger will effectively help telephone users to control their phone bill by giving a detailed analysis of each and every call, and most importantly, the cost - with a little help from your PCW.

Members of PCW-World are being given the opportunity of buying BT Charger at a very special members rate. The retail price of BT Charger will be £17.95 to non members of PCW-World but for the lifetime of this issue you can have BT Charger for the special members price of £7.95.

The World of the PCW

Another new product from PCW-World is our new book and disk: 'The World of the PCW' which is available now. A very hearty thank-you to those that contributed.

We have been very concious that a down to earth book was needed for PCW users to help them assess the capabilities of their computer when word processing has finished. We all know that the PCW is more than just a word processor, but just what is the PCW capable of? Read our new book at £14.95 and find out!

G/121 Borders

There were some very red faces here at PCW-World following the release of the new Printmaster disk, G/121 Borders and graphics disk advertised in the last newsletter. The new borders files didn't work. We are very sorry for any inconvenience that this may have caused you.

We are very grateful, as ever, to Geoffrey Childs, for providing a fix, and the new borders are now completely compatible with Printmaster (REF: G/101 from the P. D. Library).

If you bought G/121 and can't use the borders files, please send the original G/121 library disk, with a stamped self addressed envelope, to PCW-World for a free upgrade.

Graphics Transfer

Another new product, available only from PCW-World, called Graphics Transfer, has been very well received by the PCW community. (See the last newsletter.)

While graphics programs flourish on the PCW, many users have expressed a strong desire to transfer specific picture files from one DTP format to another, especially if they have upgraded from one of the cheaper programs to MicroDesign.

Now, with the help of the Graphics Transfer program disk, you can use graphics files in one format with with a program that expects graphics in another. Very good news to Printmaster users that want to use Printmaster graphics with any of the popular full-blown Desktop Publishing programs such as MicroDesign.

Another feature of the disk is the program that allows you to save a CP/M program screen to disk as a file for use in your own DTP creations. We found this particular program very useful for illustrating our new book, 'The World of the PCW.'

Graphics Transfer is available from PCW-World for £10.95.

Special Offers

Support your User Group and SAVE!

We are very pleased to announce that we are still able to offer members excellent discounts of Thurston Techniques well known (and useful) products.

The members special savings are for any TempDisc (TempDisc 1, 2, 8.2, 9 or PC) at the discount price of £9.95.

Other Thurston Techniques products that are available at special prices are as follows: WordDisc (a 39,000 word Thesaurus); Fone-Mate; XWorder; TT Patience (six card patience games) at £9.95 each. A saving of £7 for WordDisc. See elsewhere for full details.

Ribbon Re-inking

We can re-ink **any make of black fabric cassette ribbon** (not MS carbon film or colours) and offer this service to members at .99p per ribbon. Ribbon re-ink spray is also available for DIY enthusiasts at £11.95.

PCW9512 Sheetfeeder

We have limited stocks of the 9512 sheetfeeder (not 9512+) available for the special price of £39. This includes updated system disks.

Public Domain Software

Our vast range of Public Domain (copyright free) software is now available at special prices to PCW-World members. Choose 1 to four disks at £3.95 each or 5 or more for just £2.95 each. There are some gems to be had from the library so why not take advantage of these very special prices. The price includes the disk and software, please state clearly: disk size, model of PCW and disk Refeence.

Hardware

Grip Clip

A very useful copy holder that clips to either side of the PCWs monitor can be had for just £2.95. RRP is £6.95.

Bubble Jets

Special printer prices to members for the Canon BJ10e £199 and Canon BJ10ex £235.

AMX Mouse

We have limited stocks of the very popular AMX mouse and interface (with through port) at £39.95. This includes AMX Desktop software. The AMX mouse can be used with all old style PCWs.

3.5" Bulk Disks

Japanese 3.5" DS/DD disks (suitable for all PCW/TEAC 3.5" drives) are available (ex software house) for just £3.95 per ten, £19 per 50 or £35 per hundred. Stock up now at these bargain prices! Fully guaranteed.

3" Panasonic

Panasonic 3" disks are still available at £14.95 per 10. These are true Amsoft unlabelled disks (but supplied with labels).

Software

SuperCalc2

This industry standard spreadsheet is available on 3" disk (not 3.5") for just £29. Special purchase means you save £££s.

PC Software (Runs on PC - *NOT PCWs*)

Amazing savings here over RRPs. LocoScript PC vn. 1.6 for only £79; AccountsMaster (needs Hard disk) £49; InfoMaster £29; dBASE III £49; SuperCalc 3.21 £49; WordStar £49; SuperCalc 4 £49. Buy any one of the above and choose another PC Software pack free. You pay for the higher priced pack only! eg. Buy LocoScript PC and choose Supercalc 4 free, you pay £79.

Printers

What Printer?

PCW owners are very fortunate in having a system that comes ready to work, with a dedicated printer ready to go.

Other computer systems are not supplied in this manner and many a new computer owner is bewildered by the seemingly vast range of printers available. PCW users are not immune to this bewilderment either. More and more we hear from people that have problems with their dot matrix or daisywheel printer and don't know where to turn, especially as repairs are often costly and new replacements unavailable.

This short article should be of benefit to any computer user unsure of which printer is right for their particular needs and budget.

Dot Matrix

The dot matrix printer, as supplied with the PCW8256/8512 and PcW9256, is of the 9 pin variety. These printers produce a printout by striking paper with the correct combination of pins, to form an image whether it be text of graphics.

In the basic 9 pin form, dot matrix printers give a reasonable finished product, especially with a new ribbon, but for a better quality the 24 pin printer comes to the fore. Dot matrix printers can usually give what is called draft quality and NLQ (Near Letter Quality) or LQ (Letter Quality) printouts. While draft quality is much faster than Letter Quality, the printed result is not as good as the individual dots, made by each pin striking the paper, can be clearly seen. Even in LQ mode, by examining the printout closely, these dots are visible, especially around the edges of the characters.

While dot matrix printers may be noisy and give a give a slightly inferior printout, they have the advantage of being cheap to use and buy, particularly in the 9 pin form.

We recommend the Citizen printer range with prices from £135 for the Citizen 120 D+ (a 9 pin printer) to £235 for the Citizen 224, which is a 24 pin printer.

Daisy Wheel

The PCW9512 (and PcW9512+ Daisywheel) is supplied with a daisywheel printer as standard. These printers give a very good Letter Quality printout and are cheap to run but have some severe drawbacks as well.

Being like a typewriter, daisywheel printers can print only the characters available on the wheel. While different daisywheels are available giving a variety of typefaces, these printers can not vary the height of their characters or print graphics. They are very noisy too.

Bubblejets

While daisywheel printers are very noisy, bubblejet printers are very quiet and offer the capability of printing graphics images too.

The quality of printout is excellent and at the present time offers a very competitively priced alternative to the dot matrix printer, without any serious limitations.

Bubblejet printers work by squirting ink, through tiny nozzles, at the paper to form the desired image. Unlike dot matrix printers, the tiny dots are much less discernable and for occasions where presentation is important, you will be very pleased with the finished result.

Bubblejet printers cost more to run than both daisywheel and dot matrix printers as a special replacement ink cartridge is used. This not only contains the ink but the print head containing the special nozzles which costs around £15.

Canon make a whole range of Bubblejet printers, available from PCW-World, from only £199 for their Canon BJ10E, as supplied with the new PcW9512+ BJ10E.

A general guide to upgrading from the printer supplied with the PCW, to something better

Laser Printers

The top of the range is undoubtedly the Laser printer. Unlike all the previous printers that build up a page, line by line, Laser printers print a whole page at a time. Indeed they are sometimes called Page printers.

The technology used in these printers is similar to that used in photocopiers except that a Laser printer receives its image from a computer instead of an original placed onto the glass of the photocopier.

Here at PCW-World we use a Laser printer to produce our copy for the newsletter, 'PCW Streamlined BASIC' & 'The World of the PCW' books and catalogues. These masters are then used as originals for photocopying.

Laser printers are usually large and hefty printers costing from £500 upwards with running costs to match. Running costs are also high as special toner, developer and printing drums are required at regular intervals, not to mention servicing by competent specialist engineers.

Which one?

Unless you have a good sized budget for a Laser printer, the PCW user has still three types of printer from which to choose. We recommend you choose from the dot matrix and bubblejet printer.

When the final product must be of a very high quality you should choose the bubblejet and when this isn't important then you will be pleased with the dot matrix printer.

Here at PCW-World we have several excellent examples of both types of printer available, at very competitive prices. If you are unsure of which type would suit your specific needs call us here at PCW-World for advice.

What else do I need?

When you buy another printer for use with the PCW you will need some extras in certain circumstances.

PCW8256/8512 and PcW9256 owners will need a parallel interface (sometimes called centronics) to connect to the PCWs expansion port and an appropriate cable to connect the interface to the printer. The Amstrad CPS8256 (at £45) for the PCW8256/8512 and the SCA PRO9256 for the PcW9256 are recommended.

PCW9512 and PcW9512+ owners will be pleased to know that an interface is not required but just a standard parallel printer cable to connect their new printer to the PCW (cost £7.95).

LocoScript. If you have LocoScript 1, as supplied with the PCW8256/8512 and PcW9256 you must upgrade to LocoScript 2 (£24.95) and buy the Printer Support pack (£27.50). PCW9512 & PCW9512+ owners will be pleased to know that they will only require the Printer Support pack (£27.50).

CP/M programs including MicroDesign. The programs that use CP/M will not need any special software but you may need to redirect the output away from the built in printer to your new one by running the DEVICE.COM program supplied on the CP/M disk that came with your PCW. And if you want to use the screen dump facility our Shareware disk SW/101 is a must, if you buy an 'add-on' dot matrix or bubble jet printer.

If you are undecided as to which printer would suit your needs, feel free to telephone us here at PCW-World for advice.

Printers available from PCW-World

Citizen 120D + 9 pin dot matrix. £135

Citizen 224 dot matrix 24 pin £235

Canon BJ10E Bubblejet Printer £199

Canon BJ10EX Bubblejet Printer £235

Canon BJ20 Bubblejet Printer £350

Canon BJ300 Bubblejet Printer £390

PCW Programs

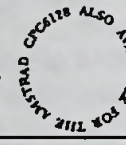
NewWord 2

NewWord 2.17
£49.95

Wordprocessor with conditional Mailmerge & Classic Wordstar Compatibility.

Features a powerful conditional mailmerge facility with If, Then, Else commands.
Wordstar compatible wordprocessing incorporating all the standard commands and features.
Printer support caters for most printers including Epson, IBM, HP Laserjet & Diablo compatible printers.
External spelling corrector boasting a 45,000 word dictionary.
Wordcount, Find & Lookup facilities.
On screen help level adjustment.

System Requirements
Amstrad PCW 8256/8512/9512/9256/9512+, CPM+



Cracker II Turbo +

Cracker II Turbo + £34.95

Spreadsheet with Financial, scientific & engineering graphical capabilities.

Cracker II Turbo Plus offers all the features required to perform precise financial and scientifically `calculated reports on the Amstrad PCW series Personal Computer.
Offers a self checking data entry system.
Screen splitting options or windowing can be selected to make setting up the spreadsheet even easier.
Cracker II supports 55 columns by 255 rows, giving plenty of scope for neat comprehensive models to be created.
Built-in functions are available for Statistical analysis, scientific & engineering calculations, with 7 different types of graphical output, including Bar, Line, Pie, and XY.
Print to any Epson compatible printer.

System Requirements
Amstrad PCW 8256/8512/9512/9256/9512+, CPM+

Full Poly System

Full Poly System
£ 49.95

Present information attractively - add display typefaces in double height & double width, show figures as graphs or create diagrams with text embedded.

Polyplot is a menu driven program allowing the user to create sophisticated graphs on your Amstrad 8000 series printer or an Epson compatible.
Graphs produced include Pie charts, Histograms, Line graphs & Comparative Histograms. Titles and XY axis labelling is also supported.
Up to 4 sets of data can be plotted on the same graph and each set can have 20 points.
Polyprint is a printer utility which prints out text in a variety of near letter quality typefaces.
9 typefaces are supplied with the program including Bodoni, Flash Bold, Commercial Script, Helvetica Light, Broadway, Helvetica Medium, Bodoni Italic, Miniscule Print & Cooper Black Large.
As Locoscript files have their own format Polyprint will not work with Locoscript files as-is, but these files can be converted to ASCII files and imported into **Polyword** where fonts can be added.
Polymail is a simple mailmerge system which enables circular letters to be processed quickly and efficiently. The address list can be up to a maximum of 100 addresses but multiple lists can be compiled.
Poly Typefaces are two additional typeface kits including Old English, American Typewriter, Helvetica Italic, Tiny Print, Cooper Hollow, Microgramma Large, Broadway Large, Compacta Large, Helvetica Medium Italic, Sans Serif Shaded, Light Italic, Microgramma Extended, Helvetica Light, Bodoni Large, Sans Serif Large and Typewriter Large.
The Full Poly System has all the ingredients to produce stylish Brochures, Price lists, Posters and Graphical Presentation literature.

System Requirements
Amstrad PCW 8256/8512/9512/9256/9512+, CPM+

C-Stam (File Transfer)

C-Stam £24.95

The fast file transfer system for copying files from different size disk drives.

C-Stam file transfer system between the Amstrad PCW and the IBM PC compatible via an RS232 interface.
Comes complete with cable and software on 3", 3½" and 5¼" disks as default.
Transfer all files on a disk or user selected files.
C-Stam transfers an exact replica of the file from the source to the target.
C-Stam can be memory resident on the PC
The Amstrad PCW requires a serial interface.

System Requirements
Amstrad PCW 8256/8512/9512/9256/9512+, CPM+, CPS8256 Serial Interface.

Touch 'n' Go

Touch 'n' Go £21.69

Touch type and Keyboard learning made easy from the classic tutor.

Touch 'n' Go consists of 62 lessons to develop accuracy & speed on both the QWERTY & numeric keypad.
The program restricts the user advancing until they have reached a certain level of competence with each skill.
Errors are reported as you go and a recorded log of ability is written for later viewing from any wordprocessor.
By the end of the course you should reach 40 words per minute with an accuracy of 95%.

System Requirements
Amstrad PCW 8256/8512/9512/9256/9512+, CPM+

PS UK

Noticeboard

Wanted: Turbo Pascal for PCW8512 (compiler & programs). Telephone R. Barnett on Herne Bay (0227) 361963

Help: The Amsoft 'Guide to DR Logo' is no longer available. I want to learn to use DR Logo but don't know where to turn for written information. Can anyone recommend a good book? Please telephone Revd Treeby on Westbury (0373) 822560

Help: Does anyone use 'Pro-Performer' Midi Sequencer program from E.M.R.? I am interested in contacting other users to talk over the use of the program and if possible, arrange a visit to see the program in action. Please telephone Ray on Winchester (0962) 862898

For Sale: PCW9512 with hard disk, Amstrad LQ5000di dot matrix printer, plus many accessories and software. Telephone Revd. Brian Revell on Stanley (0207) 231153

For Sale: Back issues of our newsletter. Not all back numbers are available. Those that are available cost £1 each. Telephone PCW-World on 021 585 7424

PCW *Streamlined* BASIC

Third edition £14.95

The third edition of our popular book *Streamlined* BASIC (with complimentary free disk) is ready now, at a reduced price of £14.95.

Not intended for the beginner (if you wish to learn programming in Mallard BASIC, start with our 'PCW: BASIC Tutorial' bookdisk at £9.95) Streamlined BASIC has much new information, not to be found elsewhere.

"PCW streamlined BASIC" book and disk is available only from the publishers, PCW-World, at £14.95 per copy.

The Shapiro Method

A new, innovative product to hit the market is "THE SHAPIRO METHOD", the fastest and most effective Music Tuition System ever devised.

The Course is specially designed to do away with the old-fashioned, boring music teaching methods, and students make rapid progress in an interesting and satisfying way, whether they are absolute beginners or already have some musical knowledge. The Method teaches all styles from Classics to Jazz, and the System can be used for any instrument the student wishes to take up, and is a complete and totally comprehensive musical education in itself..

Another unique feature of "THE SHAPIRO METHOD" is that it is a Postal Course, but comes with full Audio Cassette back-up, which is as good as having the teacher on hand 24 hours a day.

Already proving highly successful in the U.K., the Department of Trade & Industry is enthusiastically promoting "THE SHAPIRO METHOD" in sixteen overseas countries as part of the Export Initiative.

"THE SHAPIRO METHOD" is available on 3" and 3.5" disks for PCW owners (CP/M), and also on 3.5" disk for PC owners (MSDOS). Since the Course is created in MicroDesign, students will need this program to run it. For people without MicroDesign, a text-based version of the Course is available at the same price. The Course contains three sections, Preliminary, Intermediate and Advanced at the following prices:

PRELIMINARY Lessons 1 to 5 £85.00

INTERMEDIATE Lessons 1 to 5 £85.00

ADVANCED Lessons 1 to 5 £99.00

All versions come with full Audio Cassette back-up and are supplied by PCW-WORLD.

BASICally

During the various parts of this series we have been looking at ways of handling data. Apart from storing it in variables and then changing it in some way, we have found out how to arrange it in neat arrays - perhaps stored in on disc (maybe even sorted in a specific order). In this issue I want to continue in a similar vein and look how it is possible to perform efficient searching on lists of data.

When we looked at arrays we found that it was possible to hold large amounts of data in easily referenced grids. For example, it would be possible to have a grid of 1000 student names. Referencing an individual student would be achieved with something like PRINT STUDENT$(456). The name of the student at position 456 on the grid would then be displayed on the screen.

This is certainly an easy way of referencing data and it is also a convenient format for writing it to disc for subsequent retrieval. The problem with this format is that it's not easy to find data again. Mallard Basic has an add-in called Jetsam. This is not a standard feature of Basic but is something that has been added by Locomotive software. This provides database-like features, making it much easier to access data held within Basic. I won't be going into detail on Jetsam here, but I thought that I should at least acknowledge its existence.

The problem with trying to recall data stored in arrays is that you have to look at each record and compare its contents with what you are searching for. Let's go back to that imaginary list of 1000 students. The list might be only partially complete and so when it comes to adding new student details, it will be necessary to see if the student already exists on the grid.

On the face of it, the only way to achieve this is to loop through all the records and check their contents. Code similar to the following would have to be used:

```
10 FOR count = 1 TO 1000
20 IF student$(count) = "SMITH" THEN GOTO 60
30 NEXT
40 PRINT "Record does not exist"
50 GOTO 70
60 PRINT "Record exists"
70 END
```

This code examines every record in the series and stops only when it finds a valid match or if reaches the end. This takes no account of the existing sort order of the listing. The chances are that such a list would be sorted alphabetically - meaning that once the search had gone past the point where the item should have be stored, there would be no point in continuing.

Imagine if you were searching for student "ZEBEDEE". This student would probably be at the end of the listing. Assuming a full database, the Basic program would have to search 999 variable values before finding the correct one. Just to see how much work it is doing, you could make use of BASIC's trace mode. I don't think I've mentioned this before and so it's worthwhile pausing to think about this.

Trace mode tells BASIC to display the number of the line it is executing. This is very useful for debugging purposes because you get to see exactly what BASIC is doing. It may be using code that you hadn't realised it was running. To turn on trace mode, you simply type TRON. Trace will then stay on until you either leave BASIC or turn it off with the command TROFF. In our example here, you would see literally hundreds of line statements on the screen - just proving how much work is involved in the search process.

Assuming that the listing is sorted alphabetically, there is a technique that can be used to search the listing in a much more efficient manner. This technique is often known as

speaking...

Part 9

by Matthew Holbrook

the "binary chop", because it involves breaking a list in two and then making a decision on only one half -thereby getting rid of half of the data at a stroke.

The technique works because it is possible to perform "greater than" and "less than" operators on string values. This means that you can say things such as:

IF "ABC" < "DEF" THEN...

The ASCII value of "ABC" is less than "DEF" and so the above statement would be true. "ABC" is also less "APPLES", "AND" and "ABDOMEN". It is not less than "A", "AA" and "AARON". This is useful and so it allows us to easily establish whether something is greater or less than a value in a sorted listing.

So, we require a search routine that compares values in a sorted listing in order to locate a requested record in the most efficient way possible. The first thing the program will need to do is to set up an array to hold the sorted values. Then a question will be required to establish the record to search for.

The next thing the program will do is to establish where the middle of the list is. Then a comparison will be made to see if the value being sought is equal to the item in that position. If it is, then the record has been located, otherwise a check is made to see if the item is less than the value of the item in the middle of the list. If it is not, then everything before this record is discarded. A new list is then generated with the first record being the middle record of the old list. This process continues until the record is found - or until there are no more items to make a new list from. If the latter is true then the item being requested is not in the list. In each cycle of the program, half of the data will be discarded - providing a much more efficient way of searching.

Here is a program that does this job:

```
10 DIM STUDENT$(20),CLASS$(20)

20 FOR COUNT = 1 TO 20

30 READ STUDENT$(COUNT), CLASS$(COUNT)

40 NEXT

50 INPUT "Name of student";FIND$

60 FIRST=0:LAST=21:PASS=0

70 IF LAST-FIRST=1 THEN 130

80 MIDDLE=INT((LAST+FIRST)/2)

90 PASS=PASS+1

100 IF FINDS=STUDENT$(MIDDLE) THEN 150

110 IF FIND$<STUDENT$(MIDDLE) THEN LAST=MIDDLE:GOTO 70

120 FIRST=MIDDLE:GOTO 70

130 PRINT FIND$;" is not in the list.";PASS;"passes were made."

140 END

150 PRINT FIND$;" was found. The student is in class ";CLASS$(MIDDLE);" and"

160 PRINT "is at record number";MIDDLE".;PASS"passes were made in the search"

170 END

180 DATA ANDREWS,C1,BARTON,B2,CLARK,C1,DENNING,B2,EDWARDS,A1,FARLEY,B2

190 DATA GERRARD,C2,HOLBROOK,A2,ILFORD,C2,JONES,A1,KENWOOD,B2,LIGHT,A1

200 DATA MATTHEWS,B1,NETTLEY,A2,OLDHAM,C2,PETERS,A2,QUARTER,B2,ROGERS,B1 210 DATA SAMWAYS,A2,TOTTERDOWN,C2
```

This program holds the details of 20 students and their classes. An array is set up to hold the two sets of data and the items are read in from the DATA statements at the

BASICally speaking

end of the program. The start, end and middle variables are then assigned and a counter is set up for the number of passes the program makes. Once the name to be searched for has been entered, the program goes off and searches the list, reducing the amount of data by half each time - as discussed above.

This is a fairly simple example of the principle in use. For your exercise this time I suggest that you write a program to maintain a simple contact database - perhaps full names and telephone numbers. The listing will always be held sorted by name and it will be possible to read and write the list to a file on disc. Searching of the list will be possible in the way described in this article. All the things that you will need in the program have already been covered in this series.

That's it for this issue. I will continue my examination of BASIC next time.

****Apology****

A slight error crept into one of our answers last time. Line 110 in the sort program should have had a -1 at the end of it. The line should have read as follows:

110 FOR count = 1 TO position -1

****Special Offer****

Several years ago, a game Mathew had written was being sold commercially. The game, entitled 'Rugged Racer' was a fairly simple, yet addictive car racing game, written in Mallard BASIC. Features included four levels of play and saved hi-scores and options.

As a special offer to PCW-World members, Mathew is prepared to sell the game for the bargain-basement price of £1.50. To qualify for this special offer, you must send Mathew a formatted 3" disk (Single or double density). Please state which density you are sending - to save Mathew's disc drive and sanity. You must also include a stamped addressed return envelope. Only orders accompanied by a PCW-World membership number qualify for this special offer. The address to write to is: Mathew Holbrook PCW-World Offer 2 Lansdown View Timsbury Bath Avon BA3 1JP Please make all cheques payable to 'Mathew Holbrook' and allow up to two weeks for delivery.

Streamlined BASIC Productions

We are having a minor reorganisation of our finances. We believe it will make matters easier for members as well as ourselves. The *Streamlined* BASIC fund will be incorporated into the PCW-World account. This means that all cheques for *Streamlined* BASIC products should now be made out to PCW-World. This also applies to registrations for shareware, although it will be helpful if such cheques are made out to PCW-World (Shareware).

This has given us an opportunity to review the prices of products that were formerly in the *Streamlined* BASIC section, with a few price reductions. The prices shown are the special 'members only' prices. The products available are as follows:

Books (including disk):

Streamlined BASIC £14.95

The World of the PCW £14.95

Book/disks:

PCW: BASIC Tutorial £9.95

PCW: Peek & Poke £11.95

Software:

Printmaster XTRA £6.95

Graphics Transfer £10.95

SuperScript 1 £14.95

SuperScript 2 £24.95

When ordering kindly state which model PCW you are using and the disk size required.

Always quote your membership number.

Q & A

Geoffrey Childs answers another batch of your technical questions.

Q. I have a program in which I need to sort data. I found a quick sort in a magazine but it still takes nine minutes. Can I do better?

A. In a recent issue of the PCW World news letter, Matthew Holbrook demonstrated a method of sorting in Basic, called the 'bubble sort'. The method is easy to understand, but it has to be admitted that it is not quick. People who do computer studies are normally shown a number of quicker methods of sorting, such as Binary, Quicksort and Shell Metzner. I am afraid most of these don't mean very much to me as I work by trial and error! There are times when I need to sort, sometimes quickly, and I try to devise a suitable method for each problem as it occurs. The general principle is that I devise some machine code and a crude sorting method, which will eventually be much quicker than any of these clever methods in unadulterated Basic! However, let us look at a problem and see for ourselves. First we create an array of 100 random variables (all between 0 and 1 by using the Basic RND) and the problem is then to sort the result into order. The first program (lines 10,40,80,90 are identical in each program) is a simple bubble sort:

```
10 RANDOMIZE PEEK(64504!)
20 k=100:DIM a(k)
30 FOR n=1 TO k:a(n)=RND:NEXT
40 POKE 64502!,0:POKE 64503!,0:POKE 64504!,0
50 x=1:WHILE x<>0:x=0:FOR n=1 TO k-1
60 IF a(n)>a(n+1)THEN SWAP a(n),a(n+1):x=1
70 NEXT:WEND
80 p=PEEK(64503!):q=INT(p/16):PRINT p-q*6;"min";
90 p=PEEK(64504!):q=INT(p/16):PRINT p-q*6;"sec"
100 FOR n=1 TO k:PRINT a(n),:NEXT
```

The time of sorting is shown. Now try changing k (the variable for the number of items to sort) in line 20. Try 50. Try 200. You might guess that the sort with 50 will take about half the time of a sort with 100, and 200 will take twice as long as 100. This isn't the case, sorting 200 will generally take about four times as long as sorting 100. You see, the loop between lines 50 and 70 is a double loop, and not only will the FOR NEXT take twice as long, but the WHILE WEND will repeat itself about twice as many times. How do we solve this problem? The next program is slightly longer, but should be almost twice as fast. This time before sorting we divide the numbers into two arrays (greater or less than .5) and sort each array separately. Thus the sort comprises two sets of about 50 rather than one of 100. This is the principle of the binary sort although the idea can obviously be further extended.

```
10 RANDOMIZE PEEK(64504!)
20 k=100:DIM a(k),b(k),c(k)
30 FOR n=1 TO k:a(n)=RND:NEXT
31 g=1:h=1:FOR n=1 TO k
32 IF a(n)<0.5 THEN b(g)=a(n):g=g+1:ELSE c(h)=a(n):h=h+1
33 NEXT
40 POKE 64502!,0:POKE 64503!,0:POKE 64504!,0
49 j=g-1
50 x=1:WHILE x<>0:x=0:FOR n=1 TO j-1
60 IF b(n)>b(n+1)THEN SWAP b(n),b(n+1):x=1
70 NEXT:WEND
71 j=h-1
72 x=1:WHILE x<>0:x=0:FOR n=1 TO j-1
73 IF c(n)>c(n+1)THEN SWAP c(n),c(n+1):x=1
```

Your Questions Answered by our resident expert Geoffrey Childs

```
74 NEXT:WEND

75 m=1:FOR n=1 TO g-1
:a(m)=b(n):m=m+1:NEXT

76 FOR n=1 TO h-1
:a(m)=c(n):m=m+1:NEXT

80 p=PEEK(64503!):q=INT(p/16):PRINT p-q
*6;"min";

90 p=PEEK(64504!):q=INT(p/16):PRINT p-q
*6;"sec"

100 FOR n=1 TO k:PRINT a(n),:NEXT
```

Finally we use some machine code. There is not the space to explain the sorting method, except to say it is cruder and even slower than bubble sorting. But it does the job in under 2 seconds, compared to about 75 secs and 37 secs for the other two methods. It may not sort 100% perfectly if two numbers are very close, but you could carry out a quick bubble sort afterwards (which would only take about 2 seconds on an almost sorted set) if you needed 100% accuracy.

```
10 RANDOMIZE PEEK(64504!)

20 k=100:DIM a(k),b(k),c%(k)

30 FOR n=1 TO
k:a(n)=RND:c%(n)=a(n)*30000+1:NEXT

40 POKE 64502!,0:POKE 64503!,0:POKE
64504!,0

41 MEMORY 59999!

42 DATA 33, 0, 235, 6, 100, 197, 229, 17, 0,
126,33,0,0

43 DATA 14, 0, 126, 35, 229, 102, 111, 55,
63,237,82,225,48,6

44 DATA 95, 86, 229, 221, 225, 65, 35, 12,
121,254,100,32,231

45 DATA 221, 54, 0, 127, 225, 4, 112, 35,
193,16,210,201

46 FOR n=60000! TO 60051!:READ a:POKE
n,a:NEXT

49 v=VARPTR(c%(1)):POKE 60011!,v-
INT(v/256)*256:POKE 60012!,INT(v/256)

50 v=60000!:CALL v

51 FOR n=1 TO 100:b(n) =a (PEEK
(n+60159!)):NEXT

80 p=PEEK(64503!):q=INT(p/16):PRINT p-
q*6;"min";

90 p=PEEK(64504!):q=INT(p/16):PRINT p-
q*6;"sec"

100 FOR n=1 TO k:PRINT b(n),:NEXT
```

Q. I hear we have a new PD disc, which will give us a 203K format instead of the usual 173K (and corresponding increases for 720K discs). Is this as good as it sounds?

It may be! We have had the DU program, which formats into 10 sectors rather than the usual 9, and I am aware that you can get 42 tracks onto a disc instead of the usual 40. So, yes, 203K is feasible. If you just use your computer to create and store files, and you consistently use this format, you have 7 discs for the price of 6. Quite a plus point!

However, if like myself, you continually swap files between discs, pass on software to others and generally muck around when computing, there are serious snags to consider. You can normally FORMAT AND COPY a disc in a strange format, but if you try to copy onto an already regularly formatted disc, you run into bad problems. PIP doesn't like 10 sector discs, let alone 42 tracks. If you change discs, the format of the new disc is not always read unless you specifically request it, and a change from one format to another can cause problems. All these things can corrupt data, although it is usually possible (although time consuming) to recover it, if you really know what you are doing. Finally, a point that worries me. The designers of the PCW would presumably have realised that such discs were possible. Why, then, isn't it the standard format. Possible the answer is that blank discs are not always perfect, and some margin of error makes them less likely to corrupt themselves.

Q & A

Q. Any new shareware, this time?

A. Give me a chance! Most of my computing time over the last six months has been used to write and edit our new book, 'The World of the PCW'. However, we do have one new disc, which I will tell you about.

The original intention was that the book would be aimed at new users of the PCW. As it developed, it became clear that the subjects that we tackled would be of interest to PCW owners of much greater experience. I have to confess that I learned quite a lot about areas of PCW computing that I had largely ignored. Most of the contributors made similar remarks. A question that I had to ask myself was: "Does this mean that new owners of PCWs are NOT going to find the answers to the points they need to raise?"

In general, I don't think either new or experienced owners should have any complaints. However, it is possible that new owners would like more to be said about word processing, using LocoScript. Most of the more experienced users manage this side of computing with ease, and I do not feel they would be grateful for a dozen chapters explaining how to write a letter in LocoScript! Yet many experienced users can probably recall how difficult it used to be!

One of our contributors to the book told me casually that he had once written a manual on Locoscript. I asked to see it. I immediately felt that it answered my problem... and, more importantly, was likely to answer the problems of anyone finding the first stages of using LocoScript hard going. We have made this manual into a disc, called LSDISC. (By the way, the spell checker thought we ought to have called it LYRICS)!

Our main intention is that the disc will be available to any purchaser of the book at the cheapest price possible, namely PD prices. If you want the disc without the book, it is available from PCW World at £7-95. That, of course, is a fiendish trick to make you buy the book!

As usual, I will be ready to answer programming questions from members (G.T.Childs, 14 Gretton Rd., Winchcombe, Glos GL54 5EG). But... please enclose a SAE and please let me know the results of any suggestions I may have been able to give. Shareware discs SW101 to SW112, all described in previous news letters, are also available at the same address. The usual method for members is to send a DISC and SAE to me, with or without a registration fee of £ 5. If you want to test the disc, without obligation, the registration fee may be paid later. If you don't feel that the disc will be useful, you do not use it, and you do not pay the fee!

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MicroDesign3 has...

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ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
1234567890-=-+!"£$%'&*()||{}◇;:#„./?½@
¹²³·ld%æœø†⁺«»"ı●¿ßŁD©ÆŒO*‡¼¾⅓⅔
éèêëčččččččłǫçşç
Açcéñtš ôǫ ăny ſettef

- A new range of professionally designed typefaces with kerning and hyphenation. Complete font families at sizes up to about 60 points supplied as standard (more than fifty font files!).

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- Built in scanning software - fully compatible with ProSCAN scanner - you can scan directly onto the MD3 page!

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Now there's no need to change your PCW for a PC!

The classic Baskerville typeface *with special italic fonts*

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A range of non-proportional, Courier style fonts.

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Typesetting LARGE Headlines

POSTER

...and lots more

Some of the Typefaces supplied.

Technical Details

- MD3 is compatible with all PCWs, but needs at least 512k of RAM to operate - best performance requires 1Mb. (nb. MD3 will not run on an unexpanded PCW 8256 or 9256 - these computers need a RamPort or equivalent).
- Printer resolution: 240dpi resolution with 9-pin printers, including the PCW's own dot-matrix; 300 dpi resolution with Deskjet and Laser printers (needs a minimum of 768k of RAM in the PCW for a full A4 page); 360 dpi resolution with 24-pin and Bubblejet printers (needs 1Mb of RAM in the PCW for a full A4 page - get a RamPort!).
- MD3 is compatible with .MDA .MDF and .CUT files from MD2, however MicroDesign2 fonts will not be kerned and will not have the extended characters or accents.
- MD3 is compatible with all European PCW keyboards

QUITE SIMPLY THE BEST DESKTOP PUBLISHER FOR THE PCW

MD3

Customising Part 4 BASIC.COM

BASIC.COM

Barry Etheridge started this series by Customising BASIC.COM, but did not customise all the messages. We are going to change the message

?REDO FROM START

to a more understandable message,

WRONG INPUT?

As we have done before we Format a blank disc, and COPY to it SID.COM and BASIC.COM. My version of BASIC is 1.29, other versions will have different locations for what we are doing.

We start by loading CP/M and inserting the disc with a copy of SID.COM and BASIC.COM. Now from the A> prompt of CP/M type:

SID BASIC.COM

after a wrrr... of the disc in the drive, the following message will appear.

CP/M 3 SID - Version 3.0

NEXT MSZE PC END

7100 7100 0100 DAFF

#

At the # we type

d4389 [RETURN] (d = Display)

If you have Mallard 1.39 you must replace 4389 with 4300. With Mallard 1.47 you must replace 4389 with 4500. This also applies to other references to 4389.

SID will reply with 12 lines of code, three of them are as follows:

```
389: 3F 52 65 64 6F 20 66 72 6F 60 20 73 74 61 72 74 ?Redo from start
399: 0A 00 CD F8 43 CD 86 3D E5 D5 CD 13 60 F5 21 32 ....C..=....a.!2
3A9: 6F E5 20 09 CD 9C 44 E1 CD 28 65 18 0A CD 85 44 o. ...D...(e....D
```

You can see the message

?Redo from start

on the first line of the ASCII CODE.

GETTING STARTED

Now you have seen the message on screen, we are going to put it into practise by changing the message and SAVing the changes to disc. So at the # we type:-

#s4389 [RETURN] (s = SET MEMORY)

SID replies with:

4389 3F

(3F is the question mark symbol).

Now we type to the right of the current byte 3F with 57 like this:

4389 3F 57

(57 is the UPPER CASE letter W). Note that all the letters after the R (in the old message) were lower case, we are going to make them all UPPER CASE.

On the next page is the list of bytes to change.

DON'T TYPE IN THE TEXT AT THE SIDE OF THE BYTE NUMBERS. It's ONLY a GUIDE.

Type in the replacement code as above pressing [RETURN] after each entry, then at address 4399 type a full stop to terminate input, then type:

WBASIC.COM [RETURN]

the drive will wrrr.... and our NEW message is SAVEd to disc. At the # press STOP or type

[ALT] C

and we are back in CP/M. As you can see at the end of the new message, it has had to be filled in with spaces which is the

.COM files

by Harvey Clayworth

Address in Memory	Current byte at current address		Replacement byte at current address	
4389:	3F	?	57	W
438A:	52	R	52	R
438B:	65	e	4F	O
438C:	64	d	4E	N
438D:	6F	o	47	G
438E:	20	space	20	space
438F:	66	f	49	I
4390:	72	r	4E	N
4391:	6F	o	50	P
4392:	6D	m	55	U
4393:	20	space	54	T
4394:	73	s	3F	?
4395:	74	t	20	space
4396:	61	a	20	space
4397:	72	r	20	space
4398:	74	t	20	space
4399:	0A	. [RETURN]		

```
#WBASIC.COM
Records Written
#ALT(C)
```

usual practice.

Testing

To test if the NEW message works just type in the little program and RUN it, and sure enough you will see the WRONG INPUT message.

10 INPUT "Enter any letter";a 20 PRINT a

You may like to give your own error message and have the PCW BEEP (HEX 07).

This can be done by entering the correct HEX Value, instead of those suggested here, for your own new message.

The HEX Values are printed in the CP/M PLUS section of the manual supplied with PCW8256/8512 and PCW9512. If you own a new PcW, you will not find the HEX Values printed. (We are working on a new book, suitable for all but especially for those new PcW owners wanting to learn more about CP/M.)

In part 5 we will be making a customised 'PROFILE.SUB '. so until then 'Successful Customising' to you all.

Software Imperative

As you may already know, we stock the full range of software from Software Imperative at discounty prices. Please state disk size and model when ordering.

Flipper 3 £30 all PCWs

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Can you resist the challenge?

The World of the PCW

by Gordon Lither-land

Gordon has read our new publication

I feel quite honoured that I should have been invited to write a review of this excellent book.

When reading a review of something I wish I knew a little about the person writing the article. This would enable me to asses the value of the review. Is it written by an experienced user or by someone paid to review the product?

I am not one of those brilliant computer scientists or programmers, but I am not a raw recruit either! I have been described by another person, far more eminent than I, as "a moderately experienced user". Quite flattering I think!

During the preparation of 'The World of the PCW' I have been able to assist here and there, which has involved receiving and reading most, if not all, of the Chapters, Interludes and Illustrations. My first and lasting impression was that it was enjoyable and most readable.

Not only is it written in very friendly terms, but the Chapters and sections written by the 'brilliant' are understandable too. The text in this book does not lapse into the incomprehensible when read by the inexperienced - unlike most other computer books I have read. It contains contributions from people of various degrees of computing competence.

The book is presented in a completely logical order - it is not designed to be read as a novel but as a book of reference. The material progresses from the beginners level through to a level suitable for the more experienced user. There are those that may feel that they have little left to learn (especially in their own specialist field) - this book will no doubt give food for thought for such people. I for one have learnt some new tricks from this book.

'The World of the PCW' is definitely a book for every person who owns a PCW, no matter what his level of expertise may be or particular field of interest. There are chapters on word processing, Desk Top Publishing, Graphics, Programming, Hobbies, Games, Accounts, Communications and Scanning, to mention just the main areas of interest that are treated in reasonable depth. The book is literally full of tips, hints, explanations, exercises and personal experiences of individual users describing their various fields of expertise.

A free program disc is included with the book - many useful programs are included as well as an extended BASIC, DWBAS, which is required to run many of the sample programs. The programs provided include a database, Bank cheque reconciliation program, a BASIC menu program, Hangman, an educational alphabet game, and even an animation program. There is bound to be something of interest for everyone here and the beauty of the disk is that some of the programs described in the book as examples are ready to run from the disk. A great timesaver!

Another useful aspect of this book is that many common problems that many users experience with their PCWs are discussed and solutions offered to solve them. Helpful advice on adding a second printer, limbo files in LocoScript, and some useful CP/M keypresses are just a few items covered.

Various commercial programs (and some Public Domain ones too) are covered in detail, including SuperCalc2, MicroDesign and Mini Office Professional.

Priced at just 14.95 (the members discounted price) I can not imagine a purchase that gives more knowledge, more information and is such a pleasure to read, presented in such friendly terms and gives such value for money, as this book. As a moderately experienced chap I can heartily recommend it to all PCW users. It is the book most people have been praying for for years!

ALL WORD PROCESSOR USERS SHOULD HAVE THESE!

TempMate

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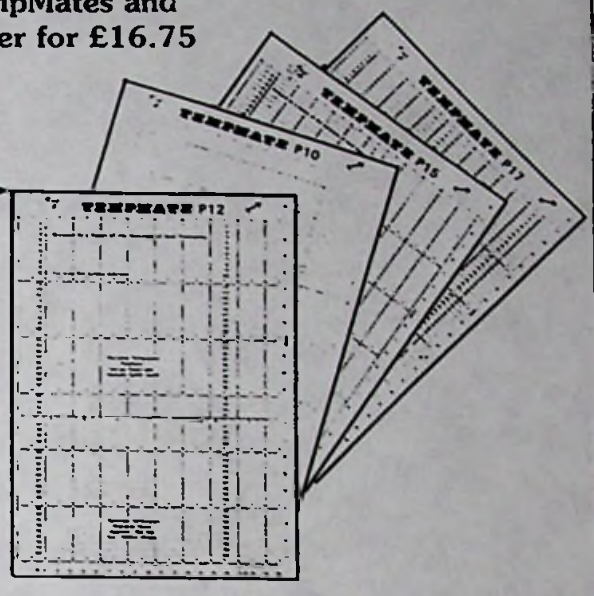

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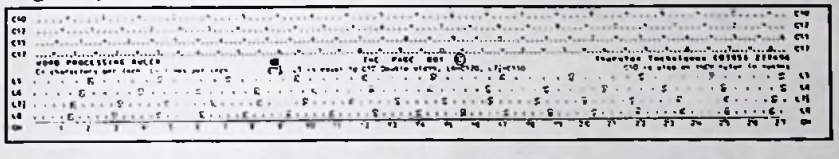
Page Boy Ruler



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TempDisc

"A showcase for the features of LocoScript" (CwAPCW Sept 1987)

TempDisc 1 (LocoScript1). PCW8256/8512/9256
172K of files on each side of a Drive A disc, 13 letterheads, invoices, minutes, agendas, annual statement, school marking chart, timetable, Will, CV, script layouts writers, inventory, planners, appointment diary, shipping document, production schedule, authors, hotel menu, bordered & plain labels & envelopes, family tree, compliments, phone list, bar chart, personal files, tournament KO-chart, league tables, seasonal greetings, star signs, invitations, apology for bad party behaviour, tickets, screen art, disc labels, a calendar and a d.i.y. 110 year diary and festive features.

TempDisc 2 (LocoScript2). PCW8256/8512/9256
Same files as TempDisc 1 PLUS special Christmas Characters in two LocoChar 'artsets' including 'boxed text/headings', Christmas designed envelopes, bordering and greeting in 14 languages, Card layouts with verse, instant Stock Layouts, pitch guide, Settings, Std (9 pre-set paper choices), clever use of Standard Phrases facility.

TempDisc 8.2 (LocoScript 2 and LocoMail). PCW8512/9256
Drive B disc 3" or 3½", 135 files (706k) with LocoMail★ and LocoChar. All TempDisc 2 files PLUS many LocoMail applications: 110 year diary (select the year and LocoMail provides!), 3 year calendar, envelopes★ (Airmail 1st class, Private, 1st Day), 23 letterheads, order form, 9 invoices★, random 'tot-ups'★, statement★, analysis layouts★, 28 choice metric convertor★, payment advice★, ledger★, weekly appointment diaries, vertical 3 to 9 columned open file (simply add your own headings). Crossword layout, self numbering tickets★, KO Draw & Chart★ (seeds players, places BYES and prints charts). Fixture lists★ for up to 16 teams (with 'no clash' options).

TempDisc 9 PCW9512/9512+
A Drive A disc for pcw 9512 owners. 706k of files. Files cover, All the TempDisc 8.2 files but NOT the Christmas Characters. Extra features include layouts for LANDSCAPE printing and additional family tree examples, the permutations of files, stock layouts, paper types etc and TempDisc 8.2 and 9 each offer over 700 choices!

SPORTS ORGANISERS: Special versions of 8.2 and 9 exclude finance files and include extra SPORT files with LocoMail match ticketing and scheduling etc.

TempDisc PC (LocoScript PC)
650k on 2x5¼ or 1x3½ disc. Includes files from the 8.2 and 9 versions (not the Christmas Characters) but with database (LocoFile) options. Choose from TempDisc Personal, Business or Sport. All PC discs have 23 letterhead options, a 3 year calendar and a 110 year LocoMail diary.

What do the critics say?
CwAPCW (Sept87) "..the Author is eminently qualified in this field and deserves a pat on the back for ingenuity.. excellent investment .."YrAPCW (Dec87)"..a few minutes will convince the perfectionist of its usefulness.. extremely professional."APCW Mag (Aug 87) "..TempDisc and TempMate are excellent..astounding what can be done with ingenuity.

TempDisc 1:£17.95 TempDisc 2: £18.95 TempDisc 8.2 or 9: £19.95 TempDisc PC: £19.95 (for PC state Sport, Personal or Business & disc size)

FoneMate

£3 OFF

PCW Computers; A double-density format suitable for the 9512/9512+/9256 and Drive B of the 8512 For use with LocoScript 2 and LocoFile and LocoMail. 3", 5¼", 3½".
PC Computers; A 3½" 720k disc for LocoScript PC's Database.

- 350k Locofile (datafiles) of National telephone codes and exchanges. Search by code or exchange. Extract files for screen lists or printing. 34k file of 071/081 London codes.
- FoneData is a LocoFile of 15 items. For names, addresses, post-codes, birthdays, fax and telephone numbers. A STATUS item allows a limitless division of records into business, services, personal, relations etc. A CARD item determines those who should be listed for greetings cards.
- 18 alternative extract files for merging to list and/or prints lists and labels.Those include selection by random on name or record number, by STATUS, birth months and greeting cards. A very flexible selection and easy to use.
- Quarter-hourly appointment diaries with vertical and horizontal lines. Weekly diary.
- An up-to-date 40k diary. Simple entry technique. Two lines per day but simply expanded with the RETURN key.
- 5 year Calendar and Personal file.
- Approximately 570k or space has been used on this disc.

WordDisc

The Writer's Choice

£3 OFF

PCW Computers; A double-density format for the 9512/9512+/9256 and Drive B of the 8512. For LocoScript 2 and LocoFile. 3", 5¼, 3½".
PC Computers; A 3½" 720k disc for LocoScript PC's Database.

- A Thesaurus/synonyms file of approximately 6000 main words and 33,000 alternatives. Uses 528k of space.
- Script Writers, Script Layouts for TV, Stage, Radio & Film.
- Layout for Authors.

X Worder

For Crossword Compilers

£3 OFF

PCW Computers; Suitable for PCW 8256, 8512, 9256 or 9512, 9512+, for Locoscript 1 or 2, 3" or 3½". Please state size & computer model when ordering.
PC Computers; A 3½" or 5¼" 360k disc for use with LocoScript PC.

- A variety of prepared CROSSWORD grids 15x15, 13x13, 12x12.
- Pre-numbered clue squares.
- Pre-numbered section for clues.
- £20 prize crossword included.

WordDisc PCW	£13.95	WordDisc PC	£16.95
FoneMate PCW	£12.95	FoneMate PC	£15.95
X Worder PCW	£9.95	X Worder PC	£14.95

Prices Include V.A.T. and U.K. delivery

PCW WORLD

MEADWAY COURT, BLOOMFIELD STREET NORTH
HALESOWEN, WEST MIDLANDS B63 3RE
Phone: 021 585 7424 Fax: 021 585 7434

Special Offers

Disk Drives

Add an industry standard disk drive to your PCW8256/8512, PCW9512 or PcW9256 PcW9512+. This will enable you to make use of the less expensive 3.5" disks. The 3.5" drive formats to 706K giving a new lease of life to the PCW8256.

All drives are supplied with U/116 software and 10 X 3.5" disks, free of charge. U/116 has software to format and read PCW and PC (MS DOS) format disks. Using MSDISC (on U/116) any PC 720K format disk may be read, formatted, copied or written to.

Full fitting instructions are supplied with each unit, no soldering involved, simply remove the rear of the case and plug into the sockets already provided. Internal drives require the removal of the fascia panel and enlarged slightly to accommodate the slightly larger 3.5" drive mechanism. The new drive is mounted on pillars inside the PCW. Screws, templates and step by step instructions are provided.

External 3.5" Disk Drive

A second drive for the PCW8256 or PCW9512. Easy to fit - £65.

External 5.25" Disk Drive (Lower Price)

A second drive for the PCW8256 or PCW9512. Easy to fit - £55.

External 3.5" Disk Drive "Sharer"

A third drive for the PCW8512 or PCW9512 (with two drives already fitted). Auto detecting mechanism, no switches. £85

External 3.5" Disk Drive PcW

A second drive for the new PcWs - £72

External 3.5" Disk Drive ABBA

A new model for use as an "A" or "B" drive for fitting to the PCW8256 or PCW9512. Supplied with free CP/M upgrade. This model has switches to allow you to use the drive as an A or B drive. £95

Internal 3.5" A Drive

For the PCW9512 - £85

Internal 3.5" B Drive (Lower Price)

For the PCW8256 or PCW9512 - £79

3" Disk Drive "A" A brand new replacement 3" A drive for the PCW8256/8512 - While stocks last - £95.

Other Products

3" Clear Rigid Plastic cases - 10 off £4.00

Cases, as above. Seconds - 10 off £2.00

3.5" Clear rigid Cases - 10 off £4.95

40 Capacity Disk box for 3.5" disks - £4.95

28 Capacity Disk box for 3" disks - £4.95

80 Capacity Disk box for 3.5" disks - £8.95

45 Capacity Disk box for 3" disks - £8.95

120 Capacity Disk box for 3.5" disks - £9.95

70 Capacity Disk box for 3" disks - £9.95

Amstrad 10 X 3" Capacity Fanfile box - £4

3 Piece Dustcover, state model - £7.95

Printer Ribbons

PCW8256/8512 and PcW9256

Black Fabric or Black Multistrike film - any mixture of 10 ribbons - £25 per 10.

Coloured Fabric ribbons. Choose from Red, Blue, Green, Yellow, Brown and Purple. £4 each or £35 per 10 ribbons. Colours may be mixed to get the discounted 10 rate.

PCW9512 and PcW9512+ Daisywheel

Black Fabric or Black Multistrike film - any mixture of 10 ribbons - £25 per 10.

Coloured Fabric ribbons. Choose from Red, Blue, Green, Yellow, Brown and Purple. £4 each or £35 per 10 ribbons. Colours may be mixed to get the discounted 10 rate.

Star LC10 & Compatible

Black Fabric ribbons - £2.99 each or £25 per 10 ribbons. A few single colours available at £4 per ribbon.

Star LC24 10 & Compatible

Black Fabric ribbons - £2.99 each or £25 per 10 ribbons.

Citizen 120 D, 120 D+, 224, Swift etc

Black fabric ribbons - £2.99 each or £25 per 10 ribbons.